

PATENT COOPERATION TREATY

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
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in its capacity as elected Office

Date of mailing (day/month/year) 25 October 2000 (25.10.00)	
International application No. PCT/SE00/00477	Applicant's or agent's file reference
International filing date (day/month/year) 10 March 2000 (10.03.00)	Priority date (day/month/year) 12 March 1999 (12.03.99)
Applicant LILJEDAHN, Bengt	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

02 October 2000 (02.10.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer R. E. Stoffel Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SEL/UM 43046	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/SE00/00477	International filing date (day/month/year) 10.03.2000	Priority date (day/month/year) 12.03.1999
International Patent Classification (IPC) or national classification and IPC ₇ B23B 45/00		
Applicant Liljedahl, Bengt		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 02.10.2000	Date of completion of this report 19.01.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket. Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667.72 88	Authorized officer Göran Carlström/JAn Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE00/00477

I. Basis of the report

1. With regard to the **elements** of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement) under article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.These elements were available or furnished to this Authority in the following language English which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE00/00477

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-9</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-9</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-9</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention is not considered to be anticipated by the patent documents cited. None of these documents reveals the accessory for a hand drilling machine described in the claims.

The invention according to claims 1-9 is therefore considered to be new, to involve an inventive step and to be industrially applicable.

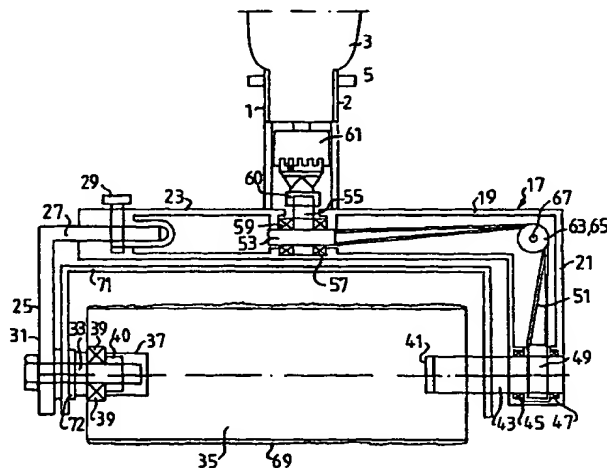
US 2819565 A (R.G. WERTH)
US 3983664 A (MARTIN)
US 2483720 A (E.M. ASBURY)
US 2563582 A (A. COLUCCI ET AL)
DE 2453705 A (NEUENBURG, HENRY)
US 4869026 A (BURRELL)



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : B23B 45/00	A1	(11) International Publication Number: WO 00/54914 (43) International Publication Date: 21 September 2000 (21.09.00)
(21) International Application Number: PCT/SE00/00477 (22) International Filing Date: 10 March 2000 (10.03.00) (30) Priority Data: 9900900-3 12 March 1999 (12.03.99) SE (71)(72) Applicant and Inventor: LILJEDAHL, Bengt [SE/SE]; Läggstavägen 38, S-124 31 Bandhagen (SE). (74) Agent: BERGENSTRÅHLE & LINDVALL AB; Box 17704, S-118 93 Stockholm (SE).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: AN ACCESSORY FOR A HAND DRILLING MACHINE



(57) Abstract

An accessory is intended for a hand drilling machine (3). The machine has in the common way an output shaft and a cylindric attachment surface (2) located near the output shaft. The accessory includes a roller (35) having a replaceable working surface material (69). The roller is at its two ends rotatably mounted in outermost ends of a fork-shaped unit formed by a transmission unit (17) and an angular part (25) which can be secured (29) along a portion (23) of the transmission unit. The transmission unit is rigidly connected to a mounting part (1) which is intended to mount the accessory to the attachment surface of the driving machine and which encloses a coupling between the output shaft of the machine and the input shaft of the accessory. To the mounting part a handle (9) is mounted in a selectable position. In or at the fork-shaped unit a transmission for transferring the rotary movement from the coupling to the roller is provided. The accessory can be used for various types of cleaning, brushing, grinding and polishing jobs. A prolongation part can be easily inserted between the driving machine and the mounting part.

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AN ACCESSORY FOR A HAND DRILLING MACHINE

TECHNICAL FIELD

The present invention relates to a device intended as an accessory for hand drilling machines for executing cleaning, polishing, finishing jobs and other jobs of a similar kind.

BACKGROUND

Owners of and also other people living in private and small houses often themselves execute quite of lot of various maintenance jobs, both in regard of buildings and the gardens belonging to the houses. Then a need exists for different auxiliary means allowing them to easily and rapidly and at a reasonable cost execute such jobs.

Hand or portable drilling machines are often included in the set of tools of a house owner. They are often used as a driving source of various accessory tools and often have for this purpose a cylindrical attachment surface located near and around the output shaft of the machine. To the end of the output shaft which is most often provided with an external thread chucks and simple tools like brushes and grinding wheels can be directly attached. Housings or frames of larger tools are attached to the cylindrical attachment surface and a rotating part of such a large tool is coupled to the output shaft of the hand drilling machine. Examples of such larger tools include circular saws, compass saws and hedge pruners.

A polishing tool which is commercially available and is intended as an accessory for a hand drilling machine includes a roller having shaft journals, one of which is intended to be attached in the chuck of the drilling machine and the other one of which is rotatably mounted to a distant end of a bent part. The other end of the bent part has an opening to be attached around the cylindrical attachment surface of the machine. In use, the operator holds the machine with one hand and the other hand grips around the middle portion of the bent part.

SUMMARY

It is an object of the invention to provide an accessory to a hand drilling machine by means of which various operations of the types rough cleaning, scraping, grinding, polishing, finishing etc. can be comfortably executed.

It is a further object of the invention to provide an

accessory which can be easily changed to have a position at a distance of the driving machine.

An accessory is thus intended for a driving machine which as is common includes an output shaft and an attachment surface. The accessory includes a roller having a working surface and a coupling between the roller and the output shaft of the driving machine. The roller is at its two ends rotatably mounted in the outermost ends of a fork-shaped unit. This unit then includes a mounting part for attachment to the attachment surface of the driving machine, the mounting part encloses a coupling between the output shaft of the machine and a transmission. The transmission is provided in or at the fork-shaped unit for transferring the rotary movement from the machine, through the coupling, to the roller. A prolongation part can be inserted between the driving machine and the mounting part and has one end formed like the end of the driving machine which includes its output shaft and another end formed like the mounting part of the fork-shaped unit.

The accessory including the driving machine is suited for example the following jobs provided that a suitable working surface of the roller is used:

Brushing dark-coloured pressure-impregnated wood e.g. placed out-doors

Scraping/brushing house walls before repainting

Grinding floors indoors without requiring a large electrically driven special machine which can need stronger electrical fuses than provided in the house

Brushing stone surface e.g. outdoor to remove coatings of algae, moss

Polishing large surface like floors and boat sides

Cleaning boat bottoms and similar curved surfaces from algae and other coatings

Wiping of surfaces indoors and outdoors

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described as a non-limiting embodiment with reference to the accompanying drawings in which:

Figs. 1 and 2 are perspective views of an accessory for a hand drilling machine,

Fig. 3 is a sectional view of the accessory of Figs. 1 and 2,

Fig. 4 is a sectional view of a prolongation rod and

Fig. 5 is a perspective view of an alternative embodiment of an accessory for a hand drilling machine.

DETAILED DESCRIPTION

5 Figs. 1 and 2 are perspective views of an accessory for a hand drilling machine. The accessory includes a mounting part 1 being essentially a short pipe and having an interior, cylindrical surface which is intended to be attached around an attachment surface 2, see the sectional view of Fig. 3, at the
10 neck of a hand drilling machine indicated at 3. A tightening device 5 at the entrance of the mounting part 1 includes a knob 7 by which the tightening device and thereby the mounting part 1 can be rigidly attached to the chassis or frame of the drilling machine. To the cylindrical exterior surface of the mounting part
15 1 an operating handle 9 is attached through a bent part 11 and a ring 13, the ring passing around the mounting part. The bent part 11 and the ring 13 are secured to each other at a screw 15, so that the bent part can be turned around the screw 15 and thereby around the ring 13. Thereby also the handle 9 can be turned
20 around an axis perpendicular to the axis of the mounting part 1 and to the direction of the output shaft of the drilling machine.

The mounting part 1 continues into a transmission housing 17, the mounting part and the transmission housing forming one integrated part. The transmission housing 17 extends with a first
25 portion 19 perpendicularly to the axis of the mounting part 1 and then continues in a second portion 21 parallel to the same axis. From the first portion 19 extends, also perpendicularly to the same shaft but in a direction opposite this portion, a third portion 23 in or along which an angular part 25 can slide. The
30 angular part 25 includes an inner first portion 27 which mostly extends inside the third portion 23. A locking pin 29 passes through holes in the inner first portion of the angular part and in the third portion securing the angular part at a predetermined distance from the transmission housing 17. The angular part 25
35 also has a second outer portion 31 which projects perpendicularly from the first portion 27 and extends in parallel to the axis of the mounting part 1. The second outer portion 31 can be significantly thinner than the second portion 21 of the transmission housing and carries at its outermost end a screw 33

forming with its inner end a shaft journal .

The screw 33 carries one end of a rotatable and driven roller 35 and passes into a hole 37 in this end of the roller. The hole is concentrically to the shaft of the roller, see the sectional view of Fig. 3, and the screw carries a bearing 39 secured by a nut 40 and adapted to match the outer portion of the hole 37, the hole having a suitably located step. Through the fixed bearing 40 the roller 35 is rotatably mounted to the angular part 25. The other opposite end of the roller 35 has a contoured hole 41 in which a rotatable shaft 43 engages for driving the roller. The hole or recess 41 can for example have the shape of a deep, short groove and the output end of driving shaft 43 has complementary shape such as having a flat shape. The rotatable shaft 43 is rotatably mounted in the second portion 21 of the transmission housing 17 by bearings 45, 47 and carries and is rigidly connected to a toothed wheel 49. Around the toothed wheel 49 extends a toothed belt 51 which is driven by another toothed wheel 53. This toothed wheel 53 is rigidly attached to a shaft 55 which has a direction located exactly in aligned with the axis of the output shaft of the drilling machine 3. The shaft 55 is by bearings 57, 59 rotatably mounted in the transmissions housing 17. The shaft 55 has a free input end which is contoured in a suitable way, such as having a hexagonal cross-section. This input end is coupled to a short intermediate shaft 60 having an output end configured in a complementary way. For example it can have a hexagonal recess at its front or output end surface. The input end of the intermediate shaft 60 is coupled to the chuck 61 of the hand drilling machine for transferring the rotary movement of the output shaft of the drilling machine to the intermediate shaft 60 and therefrom to the shaft 55 in the transmission housing 17. The toothed belt 51 is deflected at the angle of the transmission housing 17 at the continuation between its first and second portions by intermediate wheels 63, 65 which freely rotate on a shaft 67.

The roller 35 carries on its envelope surface a working material 69 as for example a cloth having e.g. polishing, grinding or scraping properties, such as an abrasive-coated cloth, abrasive paper, grinding nylon sheet. The working material 69 can also have brushing properties and then for example be

formed by short metal pins attached to a textile base. The working cloth 69 can be mounted on the roller by Velcro tapes, not shown. The working cloth can be applied as a strip helically wound around the envelope surface of the roller so that the edges of the strip are placed close to each other, the strip then having a Velcro tape at its inner surface opposite the abrasive surface and a mating Velcro tape being rigidly attached to the envelope surface of the roller.

The roller 35 is partly enclosed by a protective case 71 which corresponds to a portion of the surface of an imaginary cylinder including approximately sector-shaped portions of the end surfaces of the imaginary cylinder and including an envelope surface corresponding to a strip-shaped portion of the envelope surface of the cylinder. The protective case 71 has holes in its end portions at the axis of the corresponding imaginary cylinder and through these holes the screw 33 and the driving shaft 49 of the roller 43 respectively pass. The protective case 71 can, against the force from friction washers 72 placed at both sides of its end surface at the screw 33, be turned around the axis of the roller to give it a suitable position when using the accessory.

When using the accessory firstly suitable surface material 69 must be mounted on the roller 35. Then, the roller is detached by lifting the locking pin 29, whereupon the angular part 25 is pulled out along the rail 23. Thereby the roller 35 is released from the bearing 39 carried by the screw 33 and from the driving shaft 43. The surface material is mounted whereupon the roller 35 is mounted on the driving shaft 43 and the angular part 25 is pressed inwards, so that the bearing 39 is introduced into the hole 37 in the end of the roller. The hand drilling machine is coupled to the accessory by introducing the cylindrical mounting part 1 so that the intermediate shaft 60, which is secured in the chuck 61 of the hand drilling machine, by its output end engages with the input end of the input shaft 55. The screw 7 of the clamp 5 is then tightened. The operator then grips the handle 9 by one hand and around the drilling machine with the other hand, starts the machine and brings the roller 35 so that its surface coating 69 comes in contact with the surface to be worked.

By using a prolongation part 81, see Fig. 4, the hand

drilling machine 3 can be placed at a larger distance of the rotating roller 35 and its fork-shaped holder formed by the transmission part 17 and the angular part 25. The prolongation part 81 has the shape of a pipe 83 having a front end configured to include an outer cylindrical attachment surface 85 in the same way as the attachment surface 2 of the drilling machine. The rear end is configured in the same way as the mounting part 1 of the tool unit as described above including a clamping device 5' and a tightening knob. Inside the pipe 83 a prolongation shaft 87 is provided which simply is an intermediate shaft like 60 but having a much greater length. Thus, at its front end it is configured to be capable of engaging with the input shaft 55 and at a rear end is configured to be firmly gripped by the chuck 61 of the drilling machine. The handle 9 including attachment devices can be configured so that it can be mounted on an arbitrary position on the pipe 83 for a comfortable operation of the driving machine including the mounted accessory.

The accessory can alternatively be configured to have the shaft of the drilling machine parallel to the axis of the roller 35 as is shown in the sectional view of Fig. 5. There, the mounting part 1" is located to have a side directly at the first portion 19" of the transmission housing 17" so that the axis of the mounting part extends in parallel to the longitudinal direction of the first portion and thereby parallel to the rotation axis of the roller. The driven input shaft 55" is located in the shaft direction of the mounting part and carries as above a toothed wheel 53" cooperating with a toothed belt 51". The toothed belt 51" is here located completely inside the second portion 21" of the transmission unit and extends directly, not requiring any intermediate wheels or deflection wheels, around toothed wheels 53" on the driven input shaft and 49 on the driving shaft 43 of the roller. However, the distribution of weight of the accessory including the mounted driving portable machine can in this embodiment be considerably more asymmetric than in the first embodiment described above due to the fact that the driving machine can project too much laterally. This fact also results in that the machine including the accessory cannot be used on surfaces close to walls. This embodiment is suitably provided with a handle, not shown, corresponding to the handle 9

according to the above mounted using suitable clamping devices at a position corresponding to the position of the handle 9.

The working roller is in this embodiment shown as a brushing roller 35" which has bristles 35' attached to the envelope surface of the roller. This type of roller thus has a rigidly attached coating layer and the very roller body can have a somewhat smaller diameter adapted to the available space inside the protective cover. It can be used alternately with the roller 35 according to the above having a replaceable surface coating in the two embodiments of the accessory.

CLAIMS

1. An accessory for a driving machine having an output shaft and an attachment surface, the accessory including a roller having a working surface and a transmission between the roller and the output shaft, characterized in that the roller at its two ends is rotatably mounted in outermost portions of legs of a fork-shaped unit which contains the transmission and includes a mounting part for mounting to the attachment surface, the mounting part containing an input shaft included in the transmission and adapted to be coupled to the output shaft for transferring the movement of the output shaft through the transmission to the roller.
2. An accessory according to claim 1, characterized in that the direction of the output shaft is substantially perpendicular to the rotary axis of the roller.
3. An accessory according to claim 1, characterized in that the transmission includes a first toothed wheel which is rigidly attached to the input shaft and which cooperates with a toothed belt.
4. An accessory according to claim 1, characterized in that the transmission includes a second toothed wheel which is rotatably mounted in the fork-shaped unit and which cooperates with a toothed belt.
5. An accessory according to claim 4, characterized in that the second toothed wheel is rigidly attached to a driving shaft which is rotatably mounted in the fork-shaped unit and which in its end projecting towards the center of the fork-shaped unit is mechanically coupled to the roller for transferring the rotation of the driving shaft to the roller.
6. An accessory according to claim 4, characterized in that the second toothed wheel is mounted in a first leg of the fork-shaped unit and that an opposite second leg of the fork-shaped unit is significantly thinner than the first leg, whereby in the rotation of the roller the roller can be placed close to a side wall.
7. An accessory according to claim 1, characterized by a prolongation unit including a first end having a mounting part similar to the mounting part of the fork-shaped unit and an opposite second end similar to the output side of a driving

machine for which the accessory is intended, and an intermediate shaft between the first and second ends.

8. An accessory according to claim 1, characterized in that the working surface of the roller is the surface of a working cloth which is detachably mounted to the envelope surface of the roller.

9. An accessory according to claim 8, characterized in that the working cloth has the shape of a strip helically wound around the envelope surface of the roller and having lateral edges of the strip placed at each other.

1/3

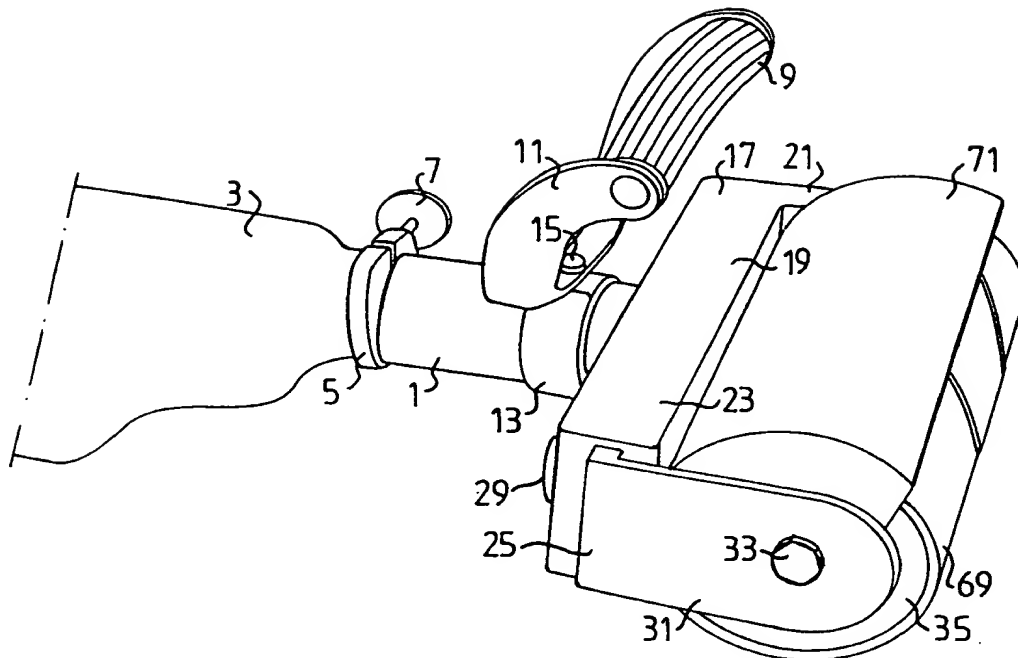


FIG.1

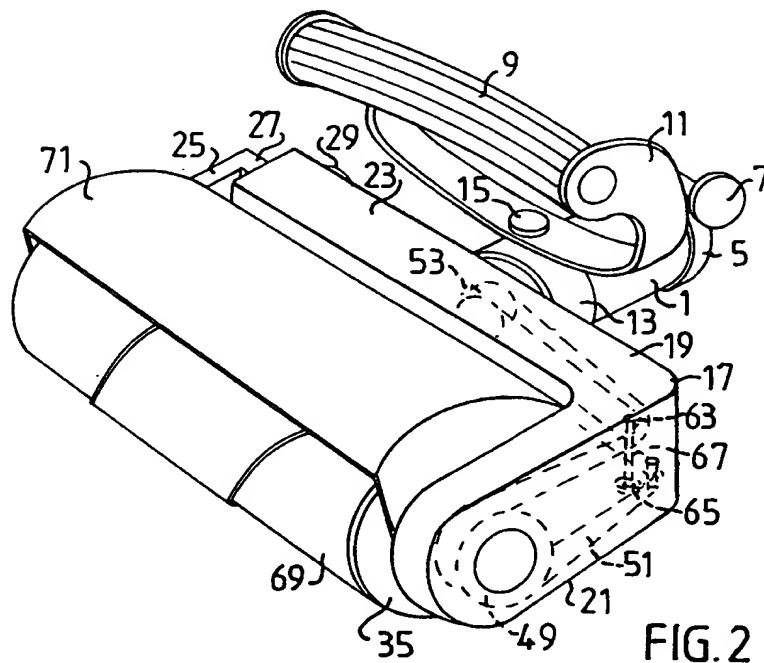
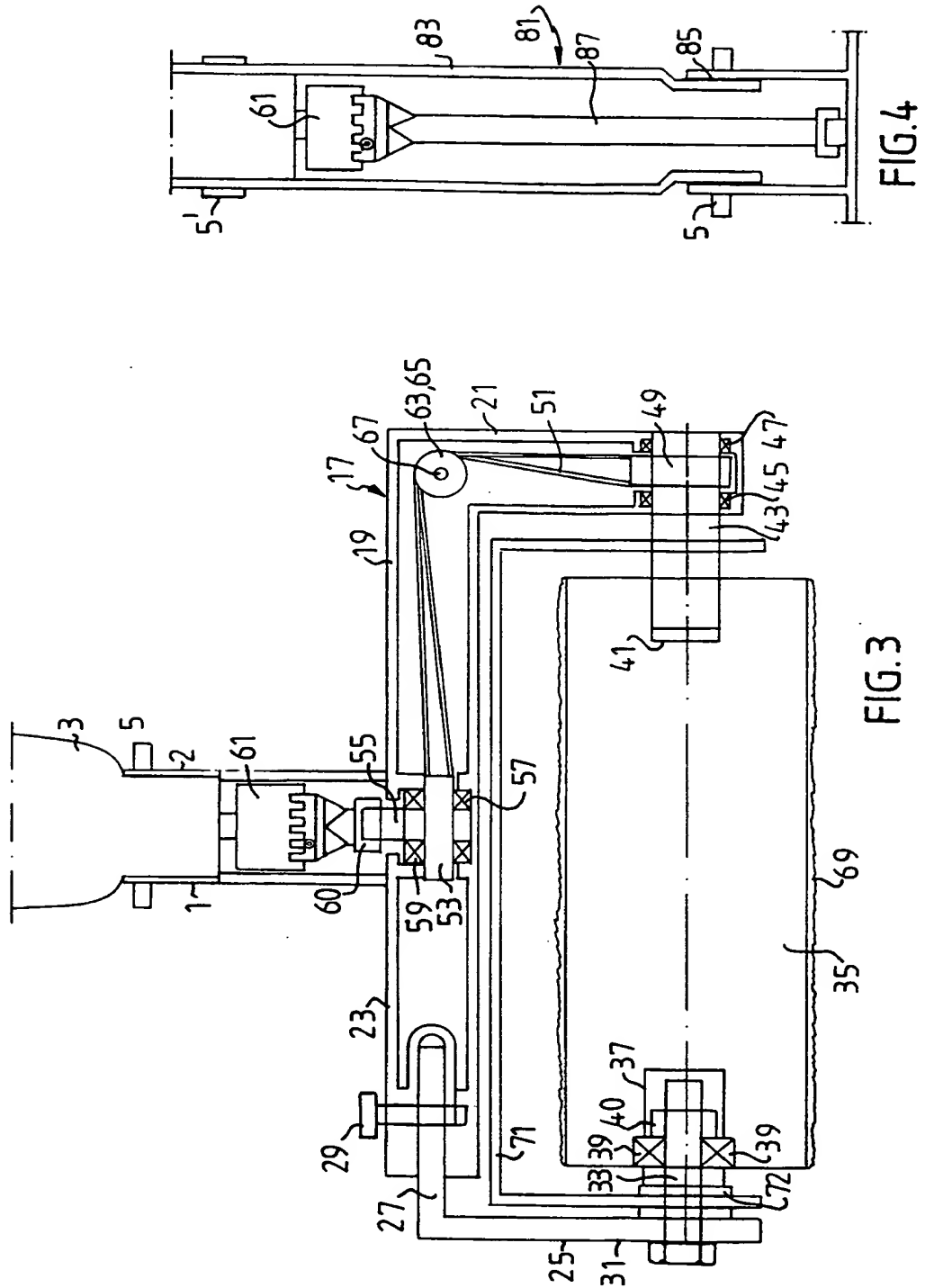
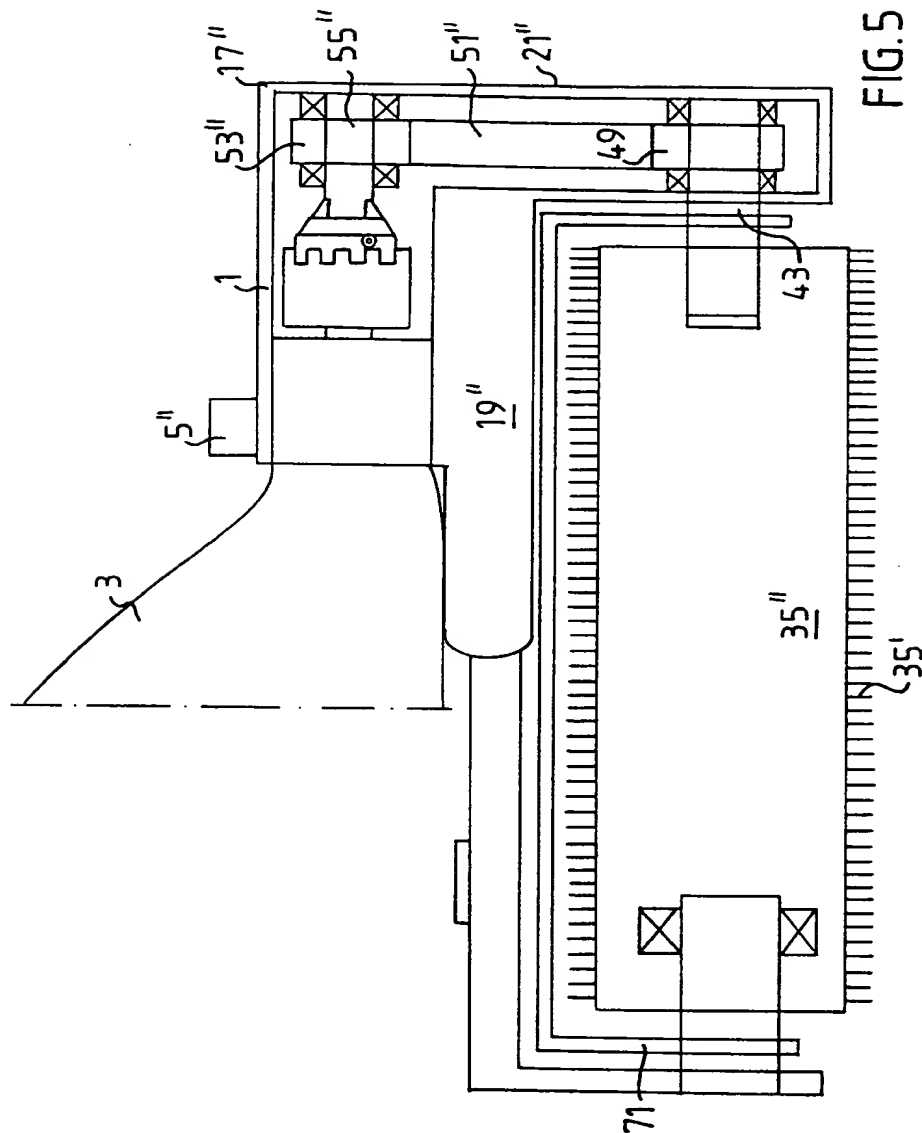


FIG.2

2 / 3



3 / 3



INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/00477

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B23B 45/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B23B, B27C, B24B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIL, EDOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2819565 A (R.G. WERTH), 14 January 1958 (14.01.58) --	1-9
A	US 3983664 A (MARTIN), 5 October 1976 (05.10.76) --	1-9
A	US 2483720 A (E.M. ASBURY), 4 October 1949 (04.10.49) --	1-9
A	US 2563582 A (A. COLUCCI ET AL), 7 August 1951 (07.08.51) --	1-9

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

16 June 2000

Date of mailing of the international search report

11 -07- 2000

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/00477

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2453705 A1 (NEUENBURG, HENRY), 30 Sept 1976 (30.09.76) --	1-9
A	US 4869026 A (BURRELL), 26 Sept 1989 (26.09.89) -- -----	1-9

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

PCT/SE 00/00477

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
US	2819565	A	14/01/58	NONE	
US	3983664	A	05/10/76	AU 497237 B AU 1676876 A CA 1039954 A DE 2628622 A GB 1534585 A JP 52064091 A US 4118897 A	07/12/78 16/02/78 10/10/78 02/06/77 06/12/78 27/05/77 10/10/78
US	2483720	A	04/10/49	NONE	
US	2563582	A	07/08/51	NONE	
DE	2453705	A1	30/09/76	NONE	
US	4869026	A	26/09/89	NONE	